

IN THE CLAIMS:

Please amend the claims as follows:

Claims 1-4. (Cancelled)

5. (Currently amended) An apparatus as recited in claim 4, comprising:

a die;

a package coupled to the die; and

an interposer coupled to the package and formed from a circuit board substrate,
by which the apparatus can be electrically coupled to a circuit board, the interposer
comprising

a first surface on which are disposed a first plurality of contacts through
which the interposer is coupled to the package,

a second surface on which are disposed a second plurality of contacts to
couple the interposer to the circuit board, and

a plurality of conductive paths between the first surface and the second
surface, each of the conductive paths formed by a solid conductive column
through the substrate, wherein each of the conductive columns has a
composition of tin (Sn) and lead (Pb), comprising at least 81% lead (Pb).

Claims 6-13 (Canceled)

14. (Currently amended) A device An interposer to couple an electronic component

package to a circuit board, the device interposer comprising a plurality of interposers beams coupled to each other, each being an interposer as recited in claim 13 of the beams comprising

a circuit board substrate having a first surface and a second surface;

a first plurality of conductive contacts disposed on the first surface to be coupled to the electronic component package;

a second plurality of conductive contacts disposed on the second surface to be coupled to the circuit board; and

a plurality of conductive paths, each separately connecting one of the first plurality of conductive contacts with one of the second plurality of conductive contacts,
wherein each of the conductive paths comprises a conductive coating formed in a recessed channel in an edge of the substrate, the edge perpendicular to the first surface and the second surface, wherein each of the recessed channels is a portion of a through hole.

15. (Currently amended) An interposer as recited in claim 14, wherein the plurality of interposers beams are coupled together to form an array of conductive paths to couple the electronic component package to the circuit board.

Claims 16-22 (Cancelled)

23. (Currently Amended) A method of coupling an electronic circuit package to a circuit board, the method comprising:

fixedly coupling a plurality of electrical contacts on a first surface of an interposer to the electronic circuit package, the interposer formed from a plurality of beams coupled to each other, each of the beams comprising a circuit board substrate having the first surface, a second surface, and a plurality of conductive paths from the first surface to the second surface; and

fixedly coupling a plurality of electrical contacts on the second surface of each of the beams to the circuit board, the interposer such that the first plurality of electrical contacts and the second plurality of electrical contacts are spaced at an equal pitch.

24. (Original) A method as recited in claim 23, wherein the electronic circuit package includes a semiconductor die.

25. (Original) A method as recited in claim 24, wherein the circuit board is a motherboard.

Claims 26-27 (Cancelled)

28. (Currently amended) An interposer as recited in claim 27 23, wherein each of the recessed channels is a portion of a though through hole.

29. (Currently amended) An interposer as recited in claim 26, further comprising:
a circuit board substrate member having a first surface and a second surface parallel to each other, the substrate further having an edge perpendicular to the first surface and the second surface;

a first plurality of conductive contact pads on the first surface;
a second plurality of conductive contact pads on the second surface; and
a plurality of recessed channels in the edge of the substrate member, extending
from the first surface to the second surface, each of the recessed channels having a
conductive material therein to form a conductive path between one of the first plurality
of contact pads and one of the second plurality of contact pads; and
a first plurality of grooves in the first surface between the contact pads on the
first surface.

30. (Original) An interposer as recited in claim 29, further comprising a second plurality of grooves in the second surface between the contact pads on the second surface.

31. (Currently amended) A device to couple an electronic component package to a circuit board, the device comprising a plurality of interposers coupled to each other, each being an interposer as recited in claim 26 29.

32. (Original) An interposer as recited in claim 31, wherein the plurality of interposers are coupled together to form an array of conductive paths to couple the electronic component package to the circuit board.

Claims 33-40 (Cancelled)

41. (Currently amended) An interposer as recited in claim 40 43, further comprising a

first plurality of grooves in the first surface between the conductive columns on the first surface.

42. (Original) An interposer as recited in claim 41, further comprising a second plurality of grooves in the second surface between the conductive columns on the second surface.

43. (Currently amended) An interposer as recited in claim 40 comprising:

a circuit board substrate having a first surface and a second surface parallel to each other;

a first plurality of conductive contact pads on the first surface;

a second plurality of conductive contact pads on the second surface; and

a plurality of solid conductive columns through the substrate perpendicular to the first surface and the second surface, each in electrical contact with one of the first plurality of contact pads and one of the second plurality of contact pads, wherein the conductive material is conductive columns are formed from an alloy of tin (Sn) and lead (Pb), comprising at least 81% lead (Pb).

Claims 44-49 (Cancelled)

50. (Currently Amended) An apparatus as recited in claim 45, wherein the interposer is to be fixedly coupled to the circuit board.

51. (Currently Amended) An interposer as recited in claim 26 29, wherein the first plurality of conductive contact pads and the second plurality of conductive contact pads are spaced at an equal pitch.

52. (New) An apparatus as recited in claim 5, further comprising:

a first plurality of grooves in the first surface between the conductive columns;
and
a second plurality of grooves in the first surface between the conductive columns, perpendicular to the first plurality of grooves.

53. (New) An apparatus as recited in claim 5, further comprising:

a third plurality of grooves in the second surface between the conductive columns; and
a fourth plurality of grooves in the second surface between the conductive columns, perpendicular to the third plurality of grooves.

54. (New) An interposer as recited in claim 14, further comprising a first plurality of grooves in the first surface between the first plurality of conductive contacts.

55. (New) An interposer as recited in claim 54, further comprising a second plurality of grooves in the second surface between the second plurality of conductive contacts, parallel to the first plurality of grooves.

56. (New) An interposer as recited in claim 42, further comprising:

a third plurality of grooves in the first surface between the conductive columns, perpendicular to the first plurality of grooves; and

a fourth plurality of grooves in the second surface between the conductive columns, perpendicular to the second plurality of grooves.